

REMARKS

Claims 1-3, 5-11, 13, 14, and 16-38 are pending in the application, with Claims 1, 8, 17, 27, and 32 being independent. Applicant amends Claims 1, 8, 17, 27, and 32 to clarify claimed subject matter and/or correct informalities. Support for the claim amendments and additions can be found in the original disclosure. No new matter has been added. Applicant respectfully requests reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks.

§ 102 REJECTIONS

Claims 32-33 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,892,937 (Caccavale). Applicant respectfully traverses the rejection.

Without conceding the propriety of the stated rejections, and only to advance the prosecution of this application, Applicant amends independent **Claim 32**, to clarify further features of the subject matter. Independent **Claim 32** as amended, now recites:

An inverse query engine having an integrated cache, the inverse query engine configured to assign a weight value to a filter of the integrated cache based on an estimate of the size of the filter, wherein the weight value denotes the relative size of the filter in relation to other filters of the integrated cache;

the inverse query engine is maintained within a bounded size by removing expired filters from the cache and trimming the cache to an optimal size when the cache reaches a maximum size;

wherein the cache is maintained within predefined limits by removing at least one filter from a group of filters stored in the cache that has been used less recently than other filters in the group of filters.

Applicant respectfully submits that Caccavale discloses no such inverse query engine.

Caccavale is directed towards a method and system for dynamically improving the performance of a server in a network, a tuning system monitors a workload of the

server in real time (Abstract). Caccavale mentions a homogeneous data cache (col. 10, lines 35-36), size of a buffer in a small region of a heterogeneous data cache B_s , size of a buffer in a medium region of a heterogeneous data cache B_M , and size of a buffer in a large region of a heterogeneous data cache B_L (col. 11, lines 9 to 21). The regions in Caccavale are not the same as weight values to a filter and an estimate of the filter as described in Applicant's Claim 1. Furthermore, there is no mention or discussion in Caccavale of *"the inverse query engine is maintained within a bounded size by removing expired filters from the cache and trimming the cache to an optimal size when the cache reaches a maximum size; wherein the cache is maintained within predefined limits by removing at least one filter from a group of filters stored in the cache that has been used less recently than other filters in the group of filters"*, as recited in Applicant's amended Claim 32.

Consequently, Applicant respectfully submits that Claim 32 is not anticipated by Caccavale and requests that the §102 rejection be withdrawn.

Dependent Claim 33 depends directly from independent Claim 32, and thus is allowable as depending from an allowable base claim. This claim is also allowable for its own recited features that, in combination with those recited in Claim 32 are not disclosed by Caccavale.

Thus, Applicant respectfully submits that as each and every feature is not disclosed, the claims are not anticipated by Caccavale. Applicant respectfully requests that the §102 rejection be withdrawn.

§ 103 REJECTIONS: A., B., AND C.:

A. Claims 34-36 and 38 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,892,937 (Caccavale) in view of U.S. Patent Application Publication No. 2004/0001498 (Chen). Applicant respectfully traverses the rejection.

B. Claim 37 stands rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,892,937 (Caccavale) in view of U.S. Patent No. 5,668,987 (Schneider). Applicant respectfully traverses the rejection.

First, as explained above with respect to the rejection under §102, Applicant submits that Caccavale no longer discloses the features of independent Claim 32. **Dependent Claims 34-38** depend directly or indirectly from independent Claim 32, and are allowable by virtue of this dependency. These dependent claims are also allowable for their own recited features that, in combination with those recited in Claim 32, are not disclosed, taught, or suggested by Caccavale, Chen, and/or Schneider, alone or in combination.

Applicant agrees with the Office that Caccavale fails to teach or suggest the cache is maintained within a predefined limits by removing expired filters from a set of filters stored in the cache (Office Action, pg. 4). Rather, Caccavale mentions a homogeneous data cache (col. 10, lines 35-36), size of a buffer in a small region of a heterogeneous data cache B_S , size of a buffer in a medium region of a heterogeneous data cache B_M , and size of a buffer in a large region of a heterogeneous data cache B_L (col. 11, lines 9 to 21).

Second, Applicant submits that Chen or Schneider fails to compensate for the deficiencies of Caccavale. Chen is directed towards a method and apparatus for

propagating filters in a publish-subscribe network using a filtering module to execute the steps (Abstract). Chen sends notification requesting filters, the filters are propagated upstream in the publish-subscribe network, where the propagated filters are processed to reduce the number of filters (Chen, para. [0011]).

Schneider is directed towards maintenance of indexes to information stored in a data processing system (col. 1, lines 16-17). First, Schneider stores, retrieves, and presents particular data records (col. 4, lines 54-55). Rather, Schneider counts up the number of misses (col. 8, line 15) and if there have been absolutely no cache “hits” (col. 8, lines 42-43). Furthermore, Schneider describes a subquery cache is a local cache or memory buffer which operates to save values (col. 6, lines 31-33), which is not an integrated cache, as recited in Applicant’s Claim 32.

In contrast, Applicant’s amended Claim 32 recites in part, “*an integrated cache, the inverse query engine configured to assign a weight value to a filter of the integrated cache based on an estimate of the size of the filter, wherein the weight value denotes the relative size of the filter in relation to other filters of the integrated cache; the inverse query engine is maintained within a bounded size by removing expired filters from the cache and trimming the cache to an optimal size when the cache reaches a maximum size; wherein the cache is maintained within predefined limits by removing at least one filter from a group of filters stored in the cache that has been used less recently than other filters in the group of filters*”.

Nowhere in Caccavale, Chen, and/or Schneider is there any discussion or mention of the features as recited in Applicant’s amended Claim 32. Accordingly, Applicant

submits that the evidence relied upon by the Office no longer supports the rejections made under §103.

Dependent Claims 34-38 depend directly or indirectly from independent Claim 32, and are allowable by virtue of this dependency. These claims are also allowable for their own recited features that, in combination with those recited in Claim 32, are not disclosed, taught, or suggested by Caccavale, Chen, and/or Schneider, alone or in combination. Accordingly, Applicant requests that the §103 rejections be withdrawn.

C. Claims 1-3, 5-11, 13-14, and 16-31 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,668,987 (Schneider) in view of U.S. Patent Application Publication No. 2004/0001498 (Chen) and further in view of U.S. Patent No. 5,892,937 (Caccavale).

Applicant respectfully traverses the rejections at least because 1) the references lack all of the recited features in the claims and 2) there is no articulated reasoning to modify and to combine the references.

Without conceding the propriety of the stated rejections, and only to advance the prosecution of this application, Applicant amends independent **Claim 1**, to clarify further features of the subject matter. Independent **Claim 1** as amended, now recites a method, comprising:

receiving a request to add a new filter to a filter table stored in an inverse query engine cache;

adding the new filter to the filter table, wherein the new filter comprises a condition field, a data field, an expiration field, a filter weight field, and a permanent flag field, the permanent flag field being a Boolean field indicating that the new filter is not to be removed from the filter table during an expire cache operation or a trim cache operation;

assigning a weight value in the filter weight field to the new filter based on an estimate of a size of the new filter, wherein the weight value denotes the relative size of the new filter in relation to other filters stored in the filter table of the inverse query engine;

determining the filter table of a bounded size;

maintaining the inverse query engine cache at or below a maximum cache size, wherein the size of the inverse query engine cache may be indicated by size of the filter table, estimate of size of the filter table, or by cache usage;

wherein the inverse query engine cache comprises a control module, a cache, an add filter module, a remove filter module, a matcher, a maintainer, an expire module, a trim module, a cache weight module, a cache weight, an optimal weight, a maximum weight, a filter table, a most recently used list, and an expiration list;

wherein the expiration list comprises a filter identifier including an expiration value in the expiration field;

removing a filter based on an expiration time;

checking the expiration value in the expiration field of a filter against a current time, in response to the expiration value is earlier than the current time, remove the filter;

checking the specified period of time, removing a filter that has been stored in the filter table longer than a specified period of time;

trimming the filter table upon the occurrence of the filter table reaching the maximum weight, by determining the cache weight and identifying filters to be removed and removing filters from the filter table to obtain the optimal weight; and

wherein determining when a permanent flag in a filter is set, leave the filter in the filter table;

wherein the inverse query engine cache is used exclusively by an inverse query engine to store filters associated therewith.

Applicant respectfully submits that no such method is disclosed, taught, or suggested by Schneider, Chen, and Caccavale, alone or in combination.

As explained above with respect to the rejection under §103, Applicant submits that Schneider, Chen, and Caccavale, alone or in combination fail to disclose Applicant's claimed subject matter.

References Fail to Disclose, Teach or Suggest expiration value in the expiration field; checking the specified period of time, removing a filter that has been stored in the filter table longer than a specified period of time; and determining when a permanent flag in a filter is set, leave the filter in the filter table

First, Applicant asserts a *prima facie* case of obviousness is no longer established against the amended claims. Applicant submits that Schneider, fails to disclose, teach, or suggest the features recited in **independent Claim 1**.

Second, Chen and Caccavale fail to compensate for the deficiencies of Schneider. Chen and Caccavale do not mention or discuss the amended features of Applicant's Claim 1.

Thus, Applicant asserts Schneider, Chen, and Caccavale, alone or in combination, fail to disclose, teach or suggest “*checking the expiration value in the expiration field of a filter against a current time, in response to the expiration value is earlier than the current time, remove the filter; checking the specified period of time, removing a filter that has been stored in the filter table longer than a specified period of time; determining when a permanent flag in a filter is set, leave the filter in the filter table*”, as recited in Applicant's amended Claim 1. Thus, Chen and Caccavale do not provide what is missing from Schneider to support a §103 rejection. Accordingly, Applicant submits that the evidence relied upon by the Office does not support the rejections made under §103 against Applicant's amended Claim 1.

Insufficient Evidence to Suggest Reason to Modify References

Third, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness... KSR Int'l Corp. v. Teleflex, Inc., Slip Op. at 14 (U.S. Apr. 30, 2007) (quoting In re Kahn, 441 F.3d 977, 988 (CA Fed. 2006)).

The Office stated it would have been obvious for one of ordinary skill in the art to assign weight to a filter, as demonstrated by Caccavale, and to incorporate it into the existing system disclosed by Schneider in view of Chen, so that the cache size may be tuned at a finer level in order to improve performance of the system (Office Action, pgs. 17-18). Applicant respectfully disagrees with this modification and submits that this modification is not well reasoned, because there is nothing in either of the references that would suggest this reason.

Furthermore, there is no articulated reason with some rational underpinning to support this rejection. Instead, the asserted reason relies on hindsight without evidence of articulated reasoning to propose the suggested modification. This rejection is improper for this additional reason.

Independent Claims 8, 17, and 27 are directed to a system, a computer-readable storage media, and a method, respectively, and each is allowable for reasons similar to those discussed above with respect to Claim 1.

Dependent Claims 2-3, 5-7, 9-11, 13, 14, 16, 18-26, and 28-31, depend directly or indirectly from one of independent Claims 1, 8, 17, and 27, respectively, and thus are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features that, in combination with those recited in Claims 1, 8, 17, and 27 are not taught, or suggested by Schneider, Chen, and/or Caccavale.

Applicant respectfully submits that the cited references do not render the claimed subject matter obvious and that the claimed subject matter, therefore, patentably distinguishes over the cited references. For all of these reasons, the §103 rejection of these claims should be withdrawn.

Conclusion

Claims 1-3, 5-11, 13, 14, and 16-38 are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of the subject application. If any issue remains unresolved that would prevent allowance of this case, the Office is requested to contact the undersigned attorney to resolve the issue.

Respectfully Submitted,

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